

## Claims

1. Method for machine diagnosis and especially for transmission diagnosis by analysis of the machine or transmission oil, in particular to detect ferritic wear particles (3), characterized in that a measurement system with a coil (2) is used, whose output signal is a measure of the condition of the machine or transmission.
2. Method according to claim 1, characterized in that the inductance of the coil (2) is influenced by an element opposite the coil (2), and the coil (2) is built into the lower side of an oil duct (9) of a machine or transmission.
3. Method according to claim 2, characterized in that the element opposite the coil (2) is a toothed wheel (6).
4. Method according to any of the preceding claims, characterized in that the coil (2) acts as a capturing magnet which produces a magnetic flux density extending outwards over the cross-section of the oil duct (9) and thereby causes the ferritic wear particles (3) that are to be detected, to accumulate on the coil (2).
5. Method according to any of the preceding claims, characterized in that the accumulation of ferritic wear particles (3) on the surface of the coil (2) changes its inductance and so too therefore its output signal, and this change is detected and evaluated by an electronic unit (8).
6. Method according to any of the preceding claims, characterized in that the effectiveness and sensitivity of the measurement system can be adjusted by means of the size of the electric current flowing through the coil (2), the choice of materials, and the number of turns in the coil (2), and the measurement system can in this way be adapted for different environments.
7. Method according to any of the preceding claims, characterized in that the measurement system also determines the rotation speed of the element opposite the coil (2).
8. Device for machine diagnosis and especially for transmission diagnosis by analysis of the machine or transmission oil, in particular to detect ferritic wear particles, characterized in that a coil (2) wound on a coil core (11) is arranged on the lower side of an oil duct (9), such that the ferritic wear particles (3) to be detected accumulate on the surface of the coil, and the ferritic wear particles (3)

influence the inductance and hence the output signal of the coil (2), which therefore provides a measure for the condition of the machine or transmission.

9. Device according to Claim 8, characterized in that an element is arranged opposite the coil (2) in such manner that the voltage signal of the coil (2) is pulsed in correspondence with the rotation movement of the said element.

10. Device according to any of Claims 8 and 9, characterized in that the measurement system comprises an electronic unit (8) which picks up from the coil (2) an output signal containing at least two data,

- a first datum varying in a pulsed way with constant amplitude, and
  - a second datum in the form of a deviation from the said amplitude,
- such that the deviation from the said amplitude is attributable to the accumulation of ferritic wear particles (3) and, from the pulsed variation, the rotation speed of the said element can be calculated.